



THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

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MAIN EXAMINATION

MAY – JULY 2018 TRIMESTER

FACULTY OF SCIENCE

DEPARTMENT OF COMPUTER AND LIBRARY SCIENCE

REGULAR PROGRAMME

CMT 206: OPERATING SYSTEMS

Date: JULY 2018

Duration: 2 Hours

INSTRUCTIONS: Answer Question ONE and any other TWO Questions

- Q1. a) Briefly explain what you understand by the term Operating Systems
(2 Marks)
- b) Give a brief description of the following operating system concepts
- i) Deadlock
 - ii) Process
 - iii) Multiprogramming
 - iv) Inter-process communication
 - v) Mutual Exclusion
- (10 Marks)**
- c) Write short notes on why relocation of programs in memory is important
(4 Marks)
- d) Give a brief description of three approaches that have proven successful when designing and implementing an operating system
(6 Marks)
- e) Briefly explain what you understand by the term kernel in operating systems
(2 Marks)
- f) Write short notes on what you understand by the term bootstrap program as used in operating systems
(2 Marks)
- g) Briefly explain two reasons why a parent process may terminate a child process
(2 Marks)

- h) Give a brief description of what you understand as context switching in operating systems **(2 Marks)**
- Q2. a) With the aid of a well labelled diagram, describe the process states **(10 Marks)**
- b) Briefly explain at least three goals of operating systems **(6 Marks)**
- c) Give a brief description of the term virtual machine and provide two advantages and two disadvantages of implementing virtual machines **(4 Marks)**
- Q3. a) Briefly explain the following terms as used in operating systems
I. i) Pre-emptive and non-pre-emptive scheduling
II. iii) process and program **(4 Marks)**
- b) Operating systems play a key role(s) in a computer system. The choice of any operating depends on the role(s) it plays. Describe briefly any five functions of an operating system **(10 Marks)**
- c) A computer system can be divided into four components. Briefly explain at least three of the four most important components **(6 Marks)**
- Q4. a) Write short notes on the following terms as used in operating systems
I. External fragmentation
II. Internal fragmentation
III. Memory protection
IV. Swapping
V. Users **(10 Marks)**
VI.
- b) Write short notes on at least two ways in which operating systems can be defined **(4 Marks)**
- c) Give a brief description of any three major advantages of multiprocessor systems **(6 Marks)**
- Q5. a) Write short notes on the following terms as used in operating systems
i) Response Time
ii) Turnaround Time
iii) Throughput
iv) Exception
v) Kernel **(10 Marks)**

- b) Give a brief description of the following terms as used in operating systems
- i) First in First Out
 - ii) Round Robin Scheduling
 - iii) Shortest Job first Scheduling
 - iv) Priority scheduling
 - v)
- (8 Marks)
- c) Operating system services provides functions that are helpful to the user. Briefly explain at least one of this functions
- (2 Marks)

END